

# Highway 116 Slope Stabilization

Sonoma County, East of Petaluma

04-SON-116-39.77/39.85

Project ID: 0400021275 (04-3G110)

SCH No. 2013122004

## Initial Study with Mitigated Negative Declaration



Prepared by the  
State of California Department of Transportation

**February 2014**



# General Information About This Document

## ***What's in this document?***

This document contains an Initial Study with Mitigated Negative Declaration, which examines the environmental effects of a proposed project on Highway 116 in Sonoma County, California.

The California Department of Transportation (Caltrans) prepared this document and circulated the draft environmental document to the public from December 2, 2013 to January 3, 2014. A public notice was published December 3, 2013 in The Press Democrat announcing the availability of the draft environmental document, and indicating that a public meeting could be held upon request during this period, although no meeting was requested. If comments had been received, they would be presented along with a response to each in Appendix D of this document. Elsewhere throughout this document; a vertical line in the margin indicates a content change, made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated.

This final environmental document as well as the technical studies are available for review at:

**Caltrans District 4 Public Affairs**, 111 Grand Ave, Oakland, CA 94612

**Petaluma Regional Library**, 100 Fairgrounds Drive, Petaluma, CA 94952

For hours of operation and directions, see: <http://www.sonomalibrary.org/branches/Petaluma.html>

**Sonoma Valley Regional Library**, 755 West Napa Street, Sonoma, CA 95476

For hours of operation and directions, see: <http://www.sonomalibrary.org/branches/Sonoma.html>

The document, both draft and final, can also be accessed electronically at the following Caltrans District 4 website: <http://www.dot.ca.gov/dist4/envdocs.htm>

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Michelle Ray, Senior Environmental Planner, Caltrans, Sierra Pacific Environmental Analysis Branch, 855 M Street, Suite 200, Fresno, CA 93721, (559) 445-5286, or call the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice), or 711.

## **PROJECT DESCRIPTION AND BACKGROUND**

<b>Project Title:</b>	Highway 116, near Petaluma, Storm Damage Repair Project-Slope Stabilization
<b>Lead Agency (Project Sponsor):</b>	California Department of Transportation (Caltrans) 111 Grand Avenue, Oakland, CA 94612
<b>Caltrans Contact Person and Telephone Number:</b>	Michelle Ray, Senior Environmental Planner Sierra Pacific Environmental Analysis Branch, Caltrans District 6 Office 855 M Street, Suite 200, Fresno, CA 93721 (559) 445-5286 Michelle.Ray@dot.ca.gov
<b>Project Location:</b>	Sonoma County, east of the City of Petaluma, eastbound side slope of Highway 116 (Stage Gulch Road), at post mile 38.93, 0.5 mile east of Lakeville Road/Lakeville Highway
<b>General Plan Description:</b>	Sonoma County General Plan-Land Use Element: The rolling hills around Petaluma and the Petaluma River and marshes historically have been the production center for poultry and dairy products. Although the poultry industry has declined, milk has been one of the county's leading agricultural commodities. In recent years, agricultural production has diversified to include vineyards, flowers, olive groves, and other specialty crops.
<b>Zoning:</b>	<u>Land Use Designation: Land Intensive Agriculture (LEA)</u> <u>Adjacent Assessor Parcel Numbers (APNs) are zoned:</u> <u>LEA B6 60 and LEA B6 60 Z</u> The (Z) applies to areas where there is an inadequate supply of water for drinking or firefighting purposes; or inadequate sewer services or danger of groundwater contamination; or where the addition of second units would contribute to existing traffic hazards or increase the burden on heavily impacted streets, roads or highways; and where, because of topography, access or vegetation, there is a significant fire hazard.
<b>Description of Project:</b>	Major elements of the project include excavating the loose material on the hillside above the highway; protecting the soil surface from erosion by placing rock slope protection fabric; installing 6-inch perforated pipe at the base of a ½ ton of rock slope protection; filling voids with native topsoil; applying biodegradable erosion control; reseeding to restore the original naturalized slope; re-grading the roadside V- ditch below slope.
<b>Surrounding Land Uses and Setting:</b>	The elevation is 244 feet above mean sea level. The landscape surrounding this rural two-lane highway contains grass-covered rolling hills, with scattered low native shrubs or small groups of tall trees. Land use in the area is mostly used for agriculture and livestock.
<b>Agencies Whose Approval is Required:</b>	See Appendix B

**Note:** Pursuant to: (State) Division 13, California Public Resources Code -This project documentation has been prepared in compliance with the California Environmental Quality Act (CEQA). A Categorical Exclusion has been signed for National Environmental Policy Act (NEPA) compliance.

## **ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:**

The environmental factors checked below would be potentially affected by this project. Please see the checklist enclosed for additional information. Any boxes *not* checked represent issues that were considered as part of the scoping and environmental analysis for the project, but for which no adverse impacts were identified. Regarding boxes not checked, no further discussion of these issues is in this document.

<input checked="" type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input checked="" type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input checked="" type="checkbox"/>	Paleontology	<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services
<input type="checkbox"/>	Recreation	<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems
<input type="checkbox"/>	Mandatory Findings of Significance				

**Geology/Soils** is a topic discussed within the Checklist.

**Aesthetics, Biological Resources and Paleontological Sensitivity** are discussed further under Additional Explanations following the Checklist. The affected environment, environmental consequences along with any appropriate avoidance, minimization and/ or mitigation measures are part of this discussion.



# Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

## ***Project Description***

The California Department of Transportation (Caltrans) proposes to repair the embankment along eastbound Highway 116 (post mile 38.93) half a mile east of Lakeville Highway, near the City of Petaluma in Sonoma County.

## ***Determination***

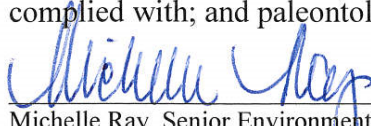
This Mitigated Negative Declaration is included to give notice to interested agencies and the public that Caltrans' has adopted a Mitigated Negative Declaration for this project. This means that Caltrans' decision on the project is final.

Caltrans has prepared an Initial Study for this project and, after public review, expects to determine from this study that the project would not have a significant effect on the environment for the following reasons.

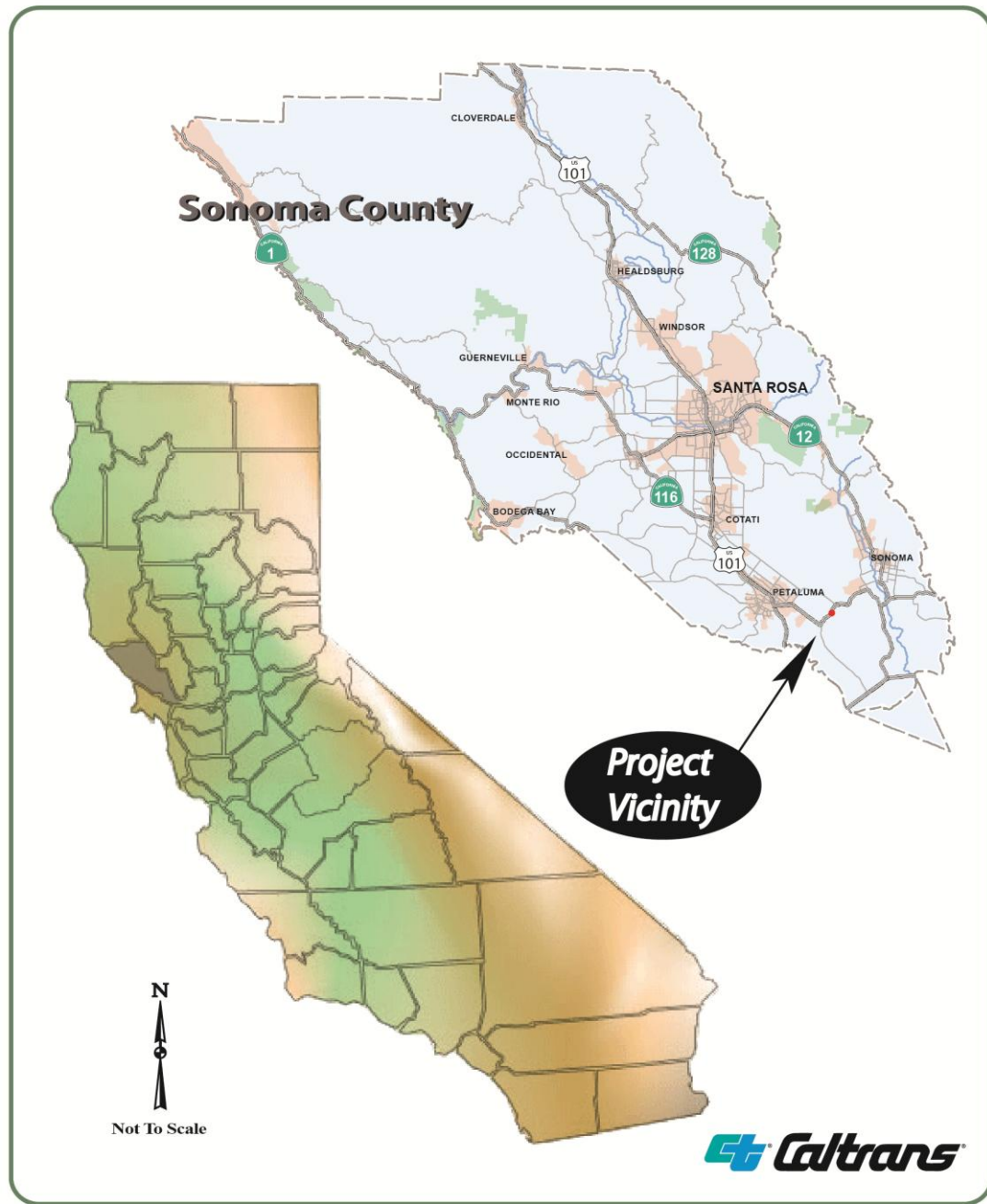
The project would have no effect on: land use, wild and scenic rivers, parks and recreational facilities, utilities, pedestrian and bicycle facilities, growth, hydrology, farmland/timberland, businesses, cultural resources, community character, hazardous waste, air quality, noise and vibration, floodplain, or the coastal zone (the project is not in the coastal zone).

The project would have no significant effect on: transportation and traffic; emergency services; visual/aesthetics; wetlands; candidate, sensitive or special-status species; water quality and storm water runoff; climate change; or geology, soils, seismic and topography.

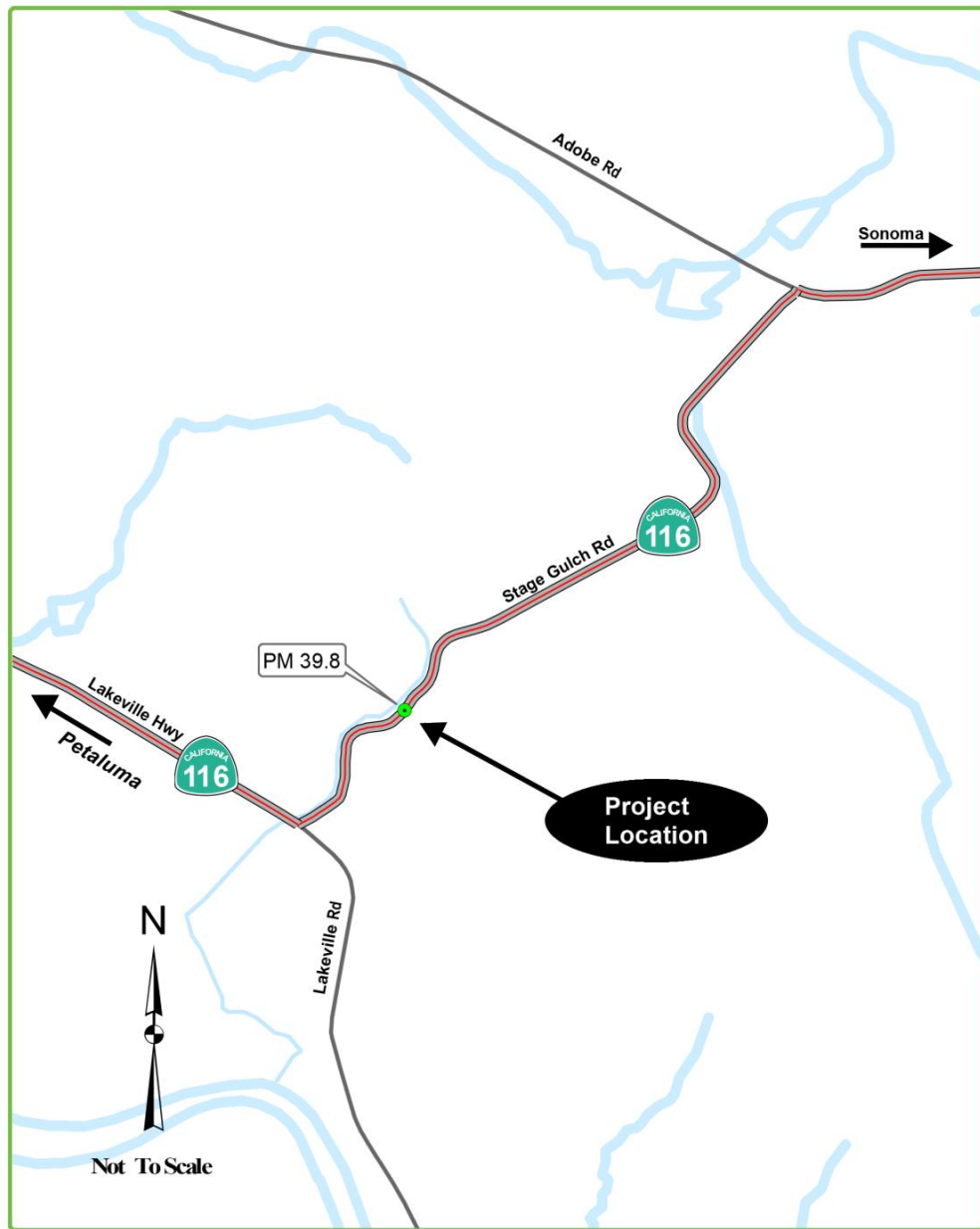
In addition, the project would have no significantly adverse effect on: nesting red-tailed hawk, migratory birds, California red-legged frog dispersal, or fossil resources because the following measures would reduce potential effects to insignificance: Migratory Bird Treaty Act conditions; the U.S. Fish and Wildlife Biological Opinion conditions to avoid and/or minimize potential effects to red-legged frog will be complied with; and paleontological protection commitments will be followed.

  
Michelle Ray, Senior Environmental Planner  
California Department of Transportation

08/10/14  
Date



**Figure 1 Project Vicinity Map**



**Figure 2 Project Location Map**

# California Environmental Quality Act Checklist

**04-SON-116**

**39.77/39.85**

**04-3G110/0400021275**

Dist.-Co.-Rte.

P.M/P.M.

E.A. /ID

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where a clarifying discussion is needed, the discussion either follows the applicable section in the checklist or is placed within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA—not NEPA—impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<b>I. AESTHETICS:</b> Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>See Additional Explanations following this Checklist.</i>				
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>II. AGRICULTURE AND FOREST RESOURCES-</b> Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>III. AIR QUALITY:</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>IV. BIOLOGICAL RESOURCES:</b> Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See Additional Explanations following this Checklist.</i>				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>See Additional Explanations following this Checklist.</i>				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**V. CULTURAL AND PALEONTOLOGICAL RESOURCES:**

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*See Additional Explanations following this Checklist.*

d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**VI. GEOLOGY AND SOILS:** Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**NOTE:** The project sits in a geologic area where landslide movement is common along hillsides in the site vicinity. This slope stabilization project would repair the eroding hillside and prevent or reduce the potential for additional shallow debris flow landslides along the upslope side of the highway (Slope Failure Investigations and Recommendations Memorandum, December 3, 2012)

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**VII. GREENHOUSE GAS EMISSIONS:** Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

If applicable, an assessment of the greenhouse gas emissions and climate change is included as a supporting technical study. While Caltrans has included this good faith effort to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

**VIII. HAZARDS AND HAZARDOUS MATERIALS:** Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**IX. HYDROLOGY AND WATER QUALITY:** Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**X. LAND USE AND PLANNING:** Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XI. MINERAL RESOURCES:** Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XII. NOISE:** Would the project result in:

a) Exposure of persons to or generation to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XIII. POPULATION AND HOUSING:** Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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#### XIV. PUBLIC SERVICES:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### XV. RECREATION:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### XVI. TRANSPORTATION/TRAFFIC: Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XVII. UTILITIES AND SERVICE SYSTEMS:** Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XVIII. MANDATORY FINDINGS OF SIGNIFICANCE**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## ***Additional Explanations for Questions in the Above Checklist***

### ***I. Aesthetics (checklist question c)***

#### ***Affected Environment***

The project is in Sonoma County, east of the City of Petaluma, 2.2 miles east of the Petaluma River on a west-facing slope of the rural two-lane Highway 116. The elevation is 244 feet above mean sea level. The surrounding landscape contains grass-covered rolling hills, with scattered low native shrubs or small groups of tall trees. Land use in the area involves mainly agriculture and livestock.

Highway 116 is not listed as eligible or designated as a scenic highway. It does not have status as a classified “landscape freeway.” There is no highway planting in this location, though a natural group of mature eucalyptus trees stands right next to the proposed work area (about 11 trees in this group).

#### ***Environmental Consequences***

No scenic resources would be affected by the project. Temporary minor visual impacts would be seen until the native plants reestablish. One of the mature eucalyptus trees beside the edge of the work area could have root area impacts, which could affect the health of the tree and result in removal of the tree.

After re-seeding, most plants should be able to grow, but 1 foot of topsoil above the rocks is the very minimum amount needed for successful planting.

#### ***Avoidance, Minimization, and/or Mitigation Measures***

To minimize construction impacts, the following measures will be implemented:

- **Limiting Vegetation Clearing:** Clearing and grubbing will only occur within the excavation and embankment slope limits, so unnecessary impacts to topsoil and existing vegetation/grasses are minimized.
- **Tree Protection:** Trees located adjacent to the project shall be protected from injury and damage as much as possible during contractors’ operations by installing high visibility fence (Type ESA) around the grouping. No materials or construction equipment would be placed within these limits.
- **Vegetation and Topsoil:** To ensure that the rock slope protection aesthetically blends into the existing landscape, soil would be placed to fill the rock voids and gaps between rocks and capped with native topsoil and covered with hydroseed.

The hydroseed will consist of an area-appropriate mix of native plants, likely including pioneer grasses and a mix of low native shrubs and perennials.

#### *IV. Biological Resources (checklist questions a and c)*

##### ***Affected Environment***

##### ***Threatened and Endangered Species and Wetlands and Other Waters of the U.S.***

The biological study area was defined as the project impact area—the area to be directly affected—plus adjacent areas that may be indirectly affected by the proposed project. A portion of the impact area will be outside of the highway right-of-way. The biological study area encompasses 6.14 acres.

Stage Gulch Creek parallels the project area, running along the channel below the highway. The limits of the study area encompass this creek, but the creek itself is outside the actual project work area.

To classify an area as a wetland (for the purposes of the Clean Water Act), three parameters are used: presence of hydrophytic (water loving) vegetation, presence of wetland hydrology, and presence of hydric soils (soils formed during saturation/inundation). All three must be present, under normal circumstances, for an area to be a potentially jurisdictional wetland. For this project, a small wetland (0.0029 acre) was identified in the project area alongside the eastbound side of the highway.

The hillside landscape consists of non-native grassland on rolling hills with species such as rye grass, broad-leaf filaree, western lupine, soft chess, hayfield tarweed, fennel, harding grass, coyotebrush and yellow star thistle. Non-native grassland is a dense to sparse cover of annual grasses, with flowering 2.5-foot-tall native annual wildflowers, especially in years of a fair amount of rainfall. Species characteristic of non-native grasslands include common wild oat, soft brome, long-beaked filaree, California poppy and Italian rye grass.

The biological study area provides suitable habitat for a variety of wildlife species. Species seen in the biological study area include the red-tailed hawk, American kestrel, turkey vulture, red-winged blackbird, and an unidentified sparrow.

The California red-legged frog (federally listed as “threatened” May 23, 1996), named for its pink or red posterior abdomen and hind legs, may also find suitable

habitat in the biological study area. Elimination or degradation of habitat through land use and development as well as habitat invasion by non-native aquatic species is what has caused this species to be listed as threatened. The California red-legged frog typically breeds from November through March. Breeding habitat generally consists of a well-defined creek and riparian zone with permanent pools that must hold water long enough for tadpoles to complete their metamorphosis into frogs. Juveniles can be active at any time of day; adults are active at night. The frogs may disperse from breeding sites at any time of year and can travel up to 2 miles without regard for topography, vegetation type, or the presence of riparian corridors. Dispersal is much more common, however, during the rainy season.

Protocol-level surveys for the California red-legged frog were not conducted, but a habitat assessment was done on July 29, 2013 with Caltrans biologists and a representative from the U.S. Fish and Wildlife Service. The California Natural Diversity Database shows four recorded occurrences of the frog within 5 miles of the project. The closest occurrence, within 1.5 miles of the project location, found several larvae, juveniles and adults in a drainage and associated stock pond northeast of the project location in 2002.

The small pools of water in Stage Gulch Creek can be considered potential breeding habitat. Though the potential is low for California red-legged frogs to occur within the biological study area, there is a chance the frogs could use this area during the rainy season when they are most likely to disperse.

A Natural Environment Study (September 2013) was prepared for this project.

### ***Environmental Consequences***

#### ***Threatened and Endangered Species and Wetlands and Other Waters of the U.S.***

There will be permanent impacts to California red-legged frog habitat because the project will permanently remove 0.327 acre of upland dispersal habitat. This species uses rodent burrows as they migrate; with the removal of soil and addition of rocks, this will not leave sufficient soil, so rodents will no longer be able to burrow in that area where the rock slope protection is placed (they need deeper soil). The temporary impact is expected to be 0.820 acre, where vegetation would be removed, but no excavation would occur.

A Biological Assessment evaluating the project's potential effects to the California red-legged frog was prepared and submitted to the U.S. Fish and Wildlife Service (October 2013). The Biological Opinion from the U.S. Fish and Wildlife Service is included in this final environmental document in Appendix C.

Impacts to Stage Gulch Creek are not anticipated because no work within the creek is proposed.

The small potentially jurisdictional wetland (0.0029 acre) that was identified within the project impact area alongside the eastbound side of the highway would be completely affected. The re-establishment of the existing V-ditch roadway drainage and excavation for the rock slope protection would affect the plants and soils of the wetland. These waters may be considered jurisdictional and under the authority of the U.S. Army Corps of Engineers and Regional Water Quality Control Board. Therefore, impacts would require a Clean Water Act 404 permit or 401 Water Discharge Permit. If needed, these applications would be submitted during final design, and the permits obtained prior to the project going out for bidding on the construction contract.

### ***Avoidance, Minimization, and/or Mitigation Measures***

#### ***Avoidance and Minimization Efforts***

Any build alternative addressing the slope stabilization would affect the small potentially jurisdictional wetland identified within the project impact area; the wetland is within the existing highway right-of-way next to the road.

Any build alternative addressing the slope stabilization would not be able to avoid removal of California red-legged frog upland dispersal habitat.

The Biological Opinion issued by U.S. Fish and Wildlife Service (see Appendix C) includes measures that must be implemented on the project site to reduce the potential for a frog to be harmed during project construction.

The U.S. Army Corps of Engineers would issue a 404 permit, and the Regional Water Quality Control Board would issue a 401 Certification (Water Discharge Permit). If the potential wetland feature is determined to be jurisdictional these permits would also have measures that must be implemented during construction.

Avoidance measures would be implemented during construction to avoid and/or minimize the potential for impacts to the California red-legged frog, migratory birds, and watercourses. These measures would include, but are not limited to:

- **Qualification Requirements:** U.S. Fish and Wildlife Service approval of the credentials of biologist(s) that would be monitoring construction activities (education, training on species identification, survey techniques, handling knowledge, field experience, etc.). No project construction will begin until Caltrans has received written approval for biologists to conduct specified activities.
- **Educational Training:** Prior to initial ground disturbance, a U.S. Fish and Wildlife Service-approved biologist will conduct an education program for all construction personnel (description of the California red-legged frog, migratory birds, and their habitats; the occurrence of these species within the project footprint and action area; an explanation of the status of these species; the measures to be implemented, etc.).
- **Monitoring:** A U.S. Fish and Wildlife Service approved biologist(s) will be on-site during all activities that may result in the take of the California red-legged frog. Safety permitting, the monitor will also investigate areas of disturbed soil for signs of California red-legged frogs within 30 minutes following the initial disturbance of that given area.
- **Pre-construction Survey:** California red-legged frog surveys will be conducted by an approved biologist prior to construction.
- **Exotic wildlife removal:** The biologist(s) will permanently remove from the project site any exotic wildlife species, such as bullfrogs and crayfish, to the extent possible.
- **Copy of Biological Opinion on Construction Site:** Prior to ground breaking, the Resident Engineer (responsible for all construction activity) will submit a letter to the U.S. Fish and Wildlife Service verifying that he or she possesses a copy of the Biological Opinion and understands the Terms and Conditions. The permit must remain on-site at all times.
- **Stopping Work:** Construction work will stop at the request of the biologist(s) if activities are identified that may result in the take (killing) of a California red-legged frog. Should the biologist(s) or the Resident Engineer exercise this



authority, they will notify the Coast-Bay/Forest Foothills Division Chief in the Sacramento Fish and Wildlife Office at (916) 414-6600.

- **Radius Around Animal:** If a California red-legged frog is discovered during any activities, all work will halt within 50 feet of the animal and the Service will be contacted to determine how to proceed.
- **Relocating:** If, at any time, a California red-legged frog is discovered, the biological monitor will be informed immediately and will determine if relocating the animal is necessary. The adjacent segment of Stage Gulch Creek will be the priority relocation site for captured California red-legged frog.
- **Limiting Work Area:** Construction access, staging, storage, and parking areas will be located within the described project footprint outside of identified sensitive habitat areas or outside of the right-of-way in areas environmentally cleared and permitted. Access routes, staging and storage areas, and contractor parking will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- **Clearing Vegetation:** Vegetation that is within the cut-and-fill line or is growing in locations where permanent features will be placed will be cleared. In areas that will be subject to revegetation, plants will only be cleared where necessary and will be cut above soil level. This will increase the potential of those plants to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or by using construction equipment such as backhoes and excavators, with the exception of trees (if one must be removed). All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The biologist will be present during all vegetation clearing and grubbing activities. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site because the California red-legged frog may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- **Seasonal Restrictions:** Except for limited vegetation clearing, work within California red-legged frog habitat will be restricted to between June 1 and October 15. Pre-construction vegetation clearing will occur outside of the typical migratory bird nesting season, restricting all tree and vegetation removal to September 15 to March 31. Inside the nesting season, any noise or vibration can affect the behavior and success of nesting birds, so construction would not occur

if birds are nesting in the adjacent eucalyptus grouping. Nighttime construction will be minimized. The ideal construction period will be September 15 to October 15. If work must extend beyond October 15, then U.S. Fish and Wildlife Service approval will be obtained.

- **Restoration:** Temporarily disturbed areas will be restored to the preconstruction function and values to the maximum extent practicable. Exposed ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion. Where disturbance includes the removal of trees and woody shrubs, native species will be replanted based on local species composition. Any revegetation plans will be reviewed and approved by the U.S. Fish and Wildlife Service.
- **Agency Access:** Caltrans will allow access by the U.S. Fish and Wildlife Service or other regulatory agency personnel to the action area to inspect project effects. Caltrans requests that all agency representatives contact the Resident Engineer prior to accessing the work site and review and sign the Safe Work Code of Practices prior to accessing.
- **Trash, Firearms, Pets:** Firearms will be prohibited at the project site, except for those carried by authorized security personnel, or local, state or federal law enforcement officials. All food and food-related trash items will be enclosed in sealed trash containers and removed from the site at the end of each day. Pets will be prohibited from the action area.
- **Invasive Species:** Presidential Executive Order 13112 will be followed to reduce the spread of invasive, non-native plant species and minimize the potential decrease of palatable vegetation for wildlife. If borrow material were required, it would be certified to be nontoxic and weed free.
- **Protection of watercourses:** Watercourses would be protected by forbidding any discharge of pollutants from vehicle and equipment cleaning into any storm drains or watercourses; keeping vehicle and equipment fueling and maintenance operations at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities; collecting and disposing of concrete wastes in washouts and water from curing operations; maintaining spill containment kits on-site at all times during construction operations and/or staging or fueling of equipment; using water trucks and dust palliatives to control dust in excavation and fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require; installing rolls or straw wattles along

or at the base of slopes during construction to capture sediment; protecting graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas and establishing permanent erosion control measures, such as biofiltration strips and swales, to receive stormwater discharges from the highway or other impervious surfaces.

### *Project Features Intended to Avoid and Minimize Harm*

- **Exclusionary Fencing:** California red-legged frog exclusionary fencing will be placed at the edge of active construction areas to restrict frog access into the work area. The fencing will consist of taut silt fabric, 24 inches in height, stacked at 10-foot intervals, with the bottom buried 6 inches below grade. Exclusion fencing will be inspected and maintained on a daily basis. Prior to the start of construction, areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed will be clearly delineated using high-visibility orange fencing. The fencing will remain in place throughout the duration of the project and will prevent construction equipment or personnel from entering sensitive habitat areas. The final project plans will depict all locations where fencing will be installed and how it will be installed. The special provisions in the bid solicitation package will clearly describe acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage.
- **Frog Ramps:** To prevent inadvertent entrapment of the California red-legged frog during construction, any excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials or will be constructed with one or more escape ramps composed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the project footprint overnight will be inspected before they are subsequently moved, capped, and/or buried.

### *V. Paleontological Resources (checklist question c)*

#### *Unique Paleontological Resources*

Paleontology is the study of life in past geologic time based on fossil plants and animals. Scientifically significant paleontological resources are identified sites or geologic deposits containing individual fossils or assemblages of fossils that are

unique or unusual, diagnostically or stratigraphically important, and add to the existing body of knowledge. Fossils found undisturbed are particularly important, as they aid in stratigraphic correlation, interpretation of tectonic events, paleoclimatology, and evolution in general.

### ***Affected Environment***

The project lies within the geologic map of the Santa Rosa Quadrangle map area, mapped as the Petaluma Formation, which is highly sensitive for paleontological resources.

### ***Environmental Consequences***

Because the project would require excavation within the Petaluma Formation, this activity would affect sediments known to contain fossils of scientific interest.

### ***Avoidance, Minimization, and/or Mitigation Measures***

Because excavation could encounter scientifically significant vertebrate fossils, paleontological monitoring and salvage are required. Measures to be implemented include:

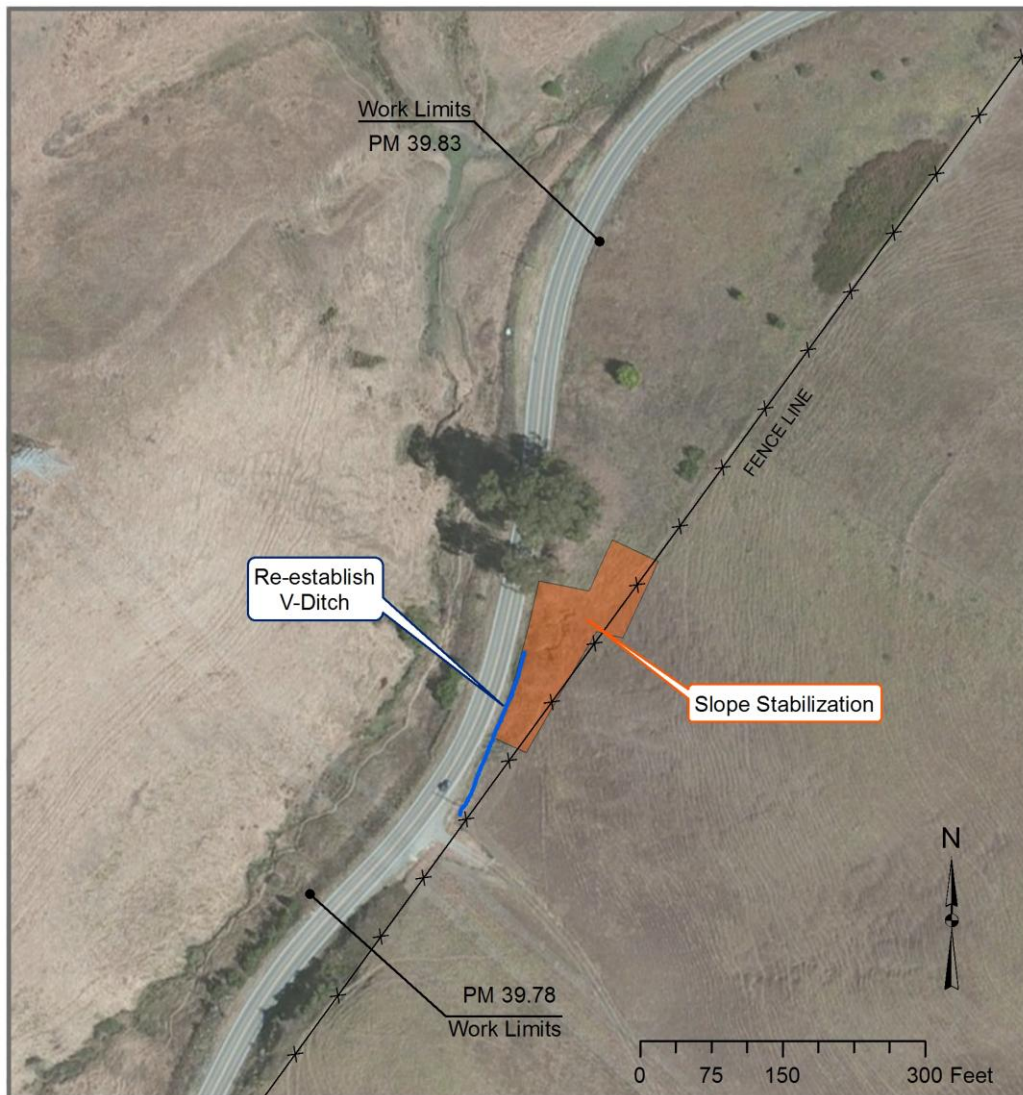
- **Construction Contract Provision:** A special provision will be included in the construction contract indicating the contractor must account for the paleontological monitoring and salvage requirements.
- **Paleontological Procedures Plan:** A detailed plan will be written prior to construction by a qualified paleontologist.
- **Education:** All construction employees involved in earth-moving activities are required to participate in an awareness training session prior to the start of earth-moving activities. A pre-grading/construction meeting will be conducted.
- **Monitoring:** A qualified paleontological monitor under the direction of the Principal Paleontologist will be on-site to observe all earth-moving activities.
- **Upon Fossil Discovery:** The paleontological monitor will contact the Principal Paleontologist and Resident Engineer to halt related construction work and follow steps laid out in the Paleontological Procedures Plan (bulk sediment samples, field notes, photos, mapping, transport to a scientific institution).

### ***Construction-related Temporary Impacts***

To accommodate the space needed for equipment, material and sufficient work area on this rural two-lane highway, the eastbound lane would be closed during

construction. Temporary barriers would be used to separate the work area from the single traffic lane along the construction limits. Portable temporary traffic signals (powered by generator) on either end of the work limits will control traffic: stopping traffic and allowing safe passage. The one-way traffic control will be necessary for a maximum of two months, the anticipated duration of construction. This could delay traffic, including emergency responders, traveling through the project area.

## Appendix A Project Mapping and Description



The scope of work consists of excavating the loose slide material and protecting the soil surface along eastbound Highway 116 from erosion by placing rock slope protection fabric and 6-inch perforated pipe. The rock slope protection will be finished with native topsoil and have biodegradable erosion control applied.

The proposed area for rock slope protection is approximately 241.5 feet long, up to 108.7 feet wide and up to 7.6 feet deep and will require a ½ ton of rock. The design requires two bench cuts, the first at 34.5 feet upslope, and a second bench cut 69.1 feet upslope from the toe of the rock slope protection work. The slope varies in steepness from 1.9:1 to 2.2:1. The total area of the rock slope protection is 14,249 square feet. The total amount to be excavated is 3,166 cubic yards. The washout v-ditch will be re-graded to match the existing v-ditch flow-line. Existing native topsoil will be removed, stockpiled and saved for re-vegetation purposes. All disturbed areas will be restored using stockpiled native topsoil and will be hydro seeded with an appropriate seed mix.

Some construction activities would occur outside the highway right-of-way. A permanent easement or acquisition is required to accomplish the work. Construction is expected to take 25 to 30 working days and will require one-way traffic control using temporary signals. The closed eastbound traffic lane would be used for staging of equipment and materials.

## Appendix B Permits and Approvals

Agency	Permit/Approval (Federal, State and Local)	Status
U.S. Fish and Wildlife Service (Sacramento Office)	Endangered Species Act Section 7 Consultation for federally listed threatened and endangered species – California red-legged frog  Biological Opinion needed from the U.S. Fish and Wildlife Service	A Biological Assessment evaluating the project's potential effect on the California red-legged frog was submitted to the U.S. Fish and Wildlife Service (October 2013), and a Biological Opinion was issued February 4, 2014 by the U.S. Fish and Wildlife Service and is included as Appendix C.
U.S. Army Corps of Engineers (San Francisco Office)	Clean Water Act Section 404 Nationwide Permit for filling or dredging waters of the U.S.	Temporary impacts to drainage features may require a Nationwide 404 permit. Coordination will occur with the U.S. Army Corps of Engineers to determine if impacts to this potential isolated wetland may require a 404 permit. If needed, the application will be submitted during final design, and the permit obtained prior to the project going out for bidding on the construction contract.
Regional Water Quality Control Board (Region 2 )	Clean Water Act Section 402—National Pollutant Discharge Elimination System: Waste Discharge Permit  A Storm Water Pollution Prevention Plan required by Caltrans will be prepared and is expected to provide all the necessary temporary pollution and erosion control measures required during construction	Compliance with (1) the Statewide National Pollutant Discharge Elimination System Permit (Order No. 99-06-DWQ NPDES No. CAS000003) and (2) the General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (Order No. 99-08-DWQ, NPDES No. CAS000002).
	Clean Water Act Section 401 Water Quality Certification	Temporary impacts to drainage features may require a 401 permit. The application will be submitted during final design and the permit obtained prior to the project going out for bidding on the construction contract.

## Appendix C Biological Opinion



### United States Department of the Interior

#### FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In Reply Refer To:  
08ESMF00-2013-F-0577-2

JAN 28 2014

Mr. Javier Almaguer  
California Department of Transportation  
Central Region Biology South Branch  
855 M Street, Suite 200  
Fresno, California 93721

Subject: Biological Opinion for the Proposed State Route 116 Post Mile 39.8 Slope  
Stabilization Project, Sonoma County, California (Caltrans EA 04-3G110)

Dear Mr. Almaguer:

This is in response to your September 30, 2013, request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed State Route (SR) 116 Post Mile 39.8 Slope Stabilization Project, in Sonoma County, California. Your request was received in our office on October 1, 2013, and included the request for formal consultation on the threatened California red-legged frog (*Rana draytonii*). Your consultation package was considered complete on December 6, 2013. This document represents the Service's biological opinion on the effects of the action on the California red-legged frog. This document has been prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*)(Act).

Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law on July 6, 2012. Effective, October 1, 2012, MAP-21 includes provisions to promote streamlined and accelerated project delivery. Caltrans was approved to participate in the MAP-21 Surface Transportation Project Delivery Program through the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (MOU). The MOU allows Caltrans to assume the Federal Highway Administration's (FHWA) responsibilities under NEPA as well as FHWA's consultation and coordination responsibilities under Federal environmental laws for most highway projects in California. Caltrans is exercising this authority as the Federal nexus for section 7 consultation on this project.

This Biological Opinion (BO) is based on: (1) the September 2013, Biological Assessment (BA); (2) a July 29, 2013, field visit; (3) Caltrans' November 27, 2013, response to the Service's November 12, 2013, 30-day letter; and (4) other information available to the Service.



### **Consultation History**

July 3, 2013	Caltrans called the Service to introduce the project. The Service stated that the California red-legged frog was a likely species to address and requested additional project information to facilitate technical assistance.
July 5, 2013	The Service received background project information from Caltrans.
July 29, 2013	The Service visited the project site with Caltrans. The Service recommended formal consultation for the California red-legged frog.
August 14, 2013	Caltrans provided the Service with a project footprint map and requested additional technical assistance.
October 1, 2013	The Service received Caltrans' September 30, 2013, request for formal consultation for the California red-legged frog along with a September 2013, BA.
November 12, 2013	The Service issued a 30-day letter to Caltrans with recommendations and a request for additional information needed to complete the consultation (Service File #:08ESMF00-2013-F-0577-1).
December 6, 2013	The Service received Caltrans' response to the 30-day letter. The Service considered the consultation package complete after reviewing the response.

## **BIOLOGICAL OPINION**

### **Description of the Action**

Caltrans proposes to stabilize an ascending slope adjacent to SR 116. The unstable area is located at Post Mile 39.8, is immediately adjacent to the SR 116 eastbound lane, and is within the Caltrans right-of-way. The installation of rock slope protection (RSP) will be the primary means of stabilization.

The construction will include and will proceed as follows:

1. Boundary fencing and California red-legged frog fencing will be installed;
2. The existing loose slide material will be excavated;
3. RSP fabric will be placed over the exposed surface;
4. Six (6) inch perforated pipe will be installed to provide capture and drainage of rain water;

5. Half (½) ton RSP will be placed on top of the RSP fabric;
6. Reserved topsoil will be spread over the RSP;
7. The existing v-ditch adjacent to SR 116 and at the base of the slope will be reconstructed;
8. Temporary biodegradable erosion control will be applied; and
9. Disturbed areas will be regraded if needed, topped with reserved topsoil, and hydroseeded.

The project will be confined within a 1.147-acre construction footprint. The footprint includes 0.327 acre of permanent and 0.587 acre of temporary effects to California red-legged frog habitat. The remaining 0.233 acre of the footprint is occupied by the existing hardscape of the SR 116 roadway.

#### *Construction Schedule*

Construction is expected to take 25 to 30 days to complete; would occur between June 1 and October 15; and is expected to begin in the fall of 2015 or 2016.

#### *Equipment*

Equipment expected to be used during construction includes:

- A backhoe for soil manipulation and drainage work;
- A bulldozer/loader for earthwork construction, clearing and grubbing;
- A dump truck to move soil from and to the project site;
- An excavator with a bucket for soil manipulation;
- A truck with a seed sprayer for landscaping;
- A water truck for earthwork construction and dust control;
- A compactor for soil manipulation;
- A haul truck for earthwork construction, clearing and grubbing, and k-rail delivery;
- A crane for k-rail placement; and
- K-rail, portable traffic signals, portable generators for traffic control.

#### *Staging and Access*

The SR 116 eastbound lane will be closed during construction and will be the sole location for project access. Staging will be limited to the SR 116 eastbound lane and an adjacent dirt road pullout.

#### *Conservation Measures*

Caltrans proposes to reduce their effects to listed species by implementing the following measures:

1. At least 15 days prior to the onset of any construction-related activities, Caltrans will submit to the Service, for approval, the name(s) and credentials of biologists it wishes to

conduct activities specified for this project. Information included in a request for authorization will include, at a minimum: (1) relevant education; (2) relevant training on California red-legged frog identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized California red-legged frog expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of BOs under which they were authorized to work with the California red-legged frog and at what level (such as construction monitoring versus handling), this will also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) A list of Federal Recovery Permits [10(a)1(A)] held or under which are authorized to work with the California red-legged frog (to include permit number, authorized activities, and name of permit holder); and (6) any relevant professional references with contact information. Project construction will not begin until Caltrans has received written Service approval for biological monitors.

2. Prior to initial ground disturbance, a Service-approved biologist will conduct an education program for all construction personnel. At a minimum, the training will include a description of the California red-legged frog, migratory birds, and their habitats; the occurrence of these species within the project footprint and action area; an explanation of the status of these species and protection under the Act and Migratory Bird Treaty Act; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction and project personnel. Upon completion of the training program, personnel will sign a form stating that they attended the program and understand the conservation measures and implications of Act. Sign-in sheets will be kept on file and will be available to the Service upon request.
3. A Service-approved biologist(s) will be on-site during all activities that may result in the take of the California red-legged frog.
4. No more than twenty (20) working days prior to any ground disturbance, preconstruction California red-legged frog surveys will be conducted by a Service-approved biologist. The Service-approved biologist(s) will investigate all potential California red-legged frog cover sites within the construction footprint. This includes full investigation of mammal burrows with scoping or excavation. The entrances of burrows will be collapsed following investigation in areas that will be subject to ground disturbance.
5. Safety permitting, a Service-approved biological monitor will investigate areas of disturbed soil for signs of California red-legged frogs within 30 minutes following the initial disturbance of that given area.
6. The Resident Engineer or their designee will be responsible for implementing the *Conservation Measures* and *Terms and Conditions* of this BO and will be the point of contact for the project. The Resident Engineer or their designee will maintain a copy of

this BO onsite whenever construction is taking place. Their name and telephone number will be provided to the Service at least thirty (30) calendar days prior to groundbreaking. Prior to ground breaking, the Resident Engineer will submit a letter to the Service verifying that they possess a copy of the BO and understands the *Terms and Conditions*.

7. The Resident Engineer will stop work at the request of the Service-approved biologist(s) if activities are identified that may result in the take of the California red-legged frog. Should the biologist(s) or the Resident Engineer exercise this authority, the Service will be notified by telephone and e-mail within one (1) working day. The Service contact will be the Coast-Bay/Forest Foothills Division Chief in the Sacramento Fish and Wildlife Office at (916) 414-6600.
8. If, at any time, a California red-legged frog is discovered, the Resident Engineer and the biological monitor will be informed immediately. The biological monitor will determine if relocating the animal is necessary and will work with Service prior to handling or relocating unless otherwise authorized. The adjacent segment of Stage Gulch Creek will be the priority relocation site for captured California red-legged frogs.
9. Construction access, staging, storage, and parking areas will be located within the described project footprint, outside of identified sensitive habitat areas, or outside of the right-of-way in areas that have been environmentally cleared and permitted. Access routes, staging and storage areas, and contractor parking will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
10. A Service-approved biologist will be present during all vegetation clearing and initial ground disturbing activities. If a California red-legged frog is discovered during these activities, the Service-approved biologist, through the Resident Engineer or their designee, will halt all work within 50 feet of the animal and will contact the Service to determine how to proceed.
11. Caltrans will restore temporarily disturbed areas to the preconstruction function and values to the maximum extent practicable. Exposed ground will be reseeded with native species to stabilize and prevent erosion. The revegetation plan will be reviewed and approved by the Service. In addition, annual monitoring reports on the success of the plantings will be provided to the Service for review.
12. Night-time construction will be minimized.
13. Firearms will be prohibited at the project site, except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
14. If requested, before, during, or upon completion of ground breaking and construction activities, Caltrans will allow access by Service personnel to the action area to inspect project effects. Caltrans requests that all agency representatives contact the Resident

Engineer prior to accessing the work site and review and sign the *Safe Work Code of Practices*, prior to accessing the work site for the first time.

15. Prior to the start of construction, the boundary of the construction footprint will be clearly delineated using high-visibility orange fencing. The fencing will remain in place throughout the duration of the project to restrict activities to the described construction footprint. The final project plans will depict all locations where fencing will be installed and how it will be installed. The special provisions in the bid solicitation package will clearly describe acceptable fencing material.
16. California red-legged frog exclusionary fencing will be placed at the edge of active construction areas to restrict frog access into the work area. The fencing will consist of taut silt fabric; 24 inches in height, stacked at 10-foot intervals, with the bottom buried 6 inches below grade. Exclusion fencing will be inspected and maintained on a daily basis.
17. To prevent inadvertent entrapment of the California red-legged frog during construction, any excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials or will be constructed with one or more escape ramps composed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the project footprint overnight will be inspected before they are subsequently moved, capped, and/or buried.
18. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site because California red-legged frog may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
19. Borrow material will be certified to be nontoxic and weed free.
20. All food and food-related trash items will be enclosed in sealed trash containers and removing them from the site at the end of each day.
21. Pets will be prohibited from the action area.
22. Caltrans will comply with *Presidential Executive Order 13112* (available at <http://www.gpo.gov/fdsys/pkg/FR-1999-02-08/pdf/99-3184.pdf>) to reduce the spread of invasive, non-native plant species and minimize the potential decrease of palatable vegetation for wildlife. This order prevents the introduction of invasive species and provides for their control in order to minimize the economic, ecological, and human health effects. In the event that noxious weeds are disturbed or removed during construction-related activities, the contractor will be required to contain the plant material associated with these noxious weeds and dispose of them in a manner that will not promote their spread. The contractor will be responsible for obtaining all permits, licenses and environmental clearances for properly disposing of materials. Areas subject

to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the areas will be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

23. A *Stormwater Pollution Prevention Plan* (SWPPP) and erosion control best management practices (BMPs) will be developed and implemented to minimize wind- or water-related erosion. These BMPs will be in compliance with Regional Water Quality Control Board requirements. Protective measures will include, at a minimum:

- a. Forbidding any discharge of pollutants from vehicle and equipment cleaning into any storm drains or watercourses;
- b. Keeping vehicle and equipment fueling and maintenance operations at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities;
- c. Collecting and disposing of concrete wastes in washouts and water from curing operations.
- d. Maintaining spill containment kits onsite at all times during construction operations and/or staging or fueling of equipment;
- e. Using water trucks and dust palliatives to control dust in excavation and fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require;
- f. Installing coir rolls or straw wattles along or at the base of slopes during construction to capture sediment;
- g. Protecting graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas; and
- h. Establishing permanent erosion control measures, such as biofiltration strips and swales, to receive stormwater discharges from the highway or other impervious surfaces.

### **Action Area**

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the purposes of the effects assessment, the action area encompasses the direct effects associated with the 1.147-acre construction footprint and the indirect effects to the area within at least 300 feet from the boundaries of the footprint due to noise and vibration.

### **Analytical Framework for the Jeopardy Determination**

In accordance with policy and regulation, the jeopardy analysis in this BO relies on four components: (1) the *Status of the Species*, which evaluates the California red-legged frog range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the California red-legged frog in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog current status, taking into account any cumulative effects, to determine if implementation of the action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis in this BO places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and the role of the action area in the survival and recovery of the California red-legged frog as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

### **Status of the California Red-Legged Frog**

#### *Listing Status*

The California red-legged frog was listed as a threatened species on May 23, 1996 (Service 1996). Critical habitat was re-designated for this species on March 17, 2010 (Service 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

#### *Description*

The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. California red-legged frogs have paired vocal sacs and vocalize in air (Hayes and Krempels 1986). Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

#### *Distribution*

The historic range of the red-legged frog extended coastally from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County,

California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985; Hayes and Krempels 1986; Fellers 2005). The red-legged frog was historically documented in 46 California counties but the taxon now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the Central Coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast Range, northern Transverse Ranges, southern Transverse Ranges, and Peninsular Ranges.

#### *Status and Natural History*

California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and man-made ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, California red-legged frogs also have been found in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. California red-legged frogs also can be found in disturbed areas such as channelized creeks and drainage ditches in urban and agricultural areas. For example, an adult California red-legged frog was observed in a shallow isolated pool on North Slough Creek in the American Canyon area of Napa County (C. Gaber, PG&E, pers. comm., 2008). This frog location was surrounded by vineyard development. Another adult California red-legged frog was observed under debris in an unpaved parking lot in a heavily industrial area of Burlingame (P. Kobernus, Coast Ridge Ecology, pers. comm., 2008). This frog was likely utilizing a nearby drainage ditch. Caltrans also has discovered California red-legged frog adults, tadpoles, and egg masses within a storm drainage system within a major cloverleaf intersection of Millbrae Avenue and SR 101 in a heavily developed area of San Mateo County (Caltrans 2007). California red-legged frog has the potential to persist in disturbed areas as long as those locations provide at least one or more of their life history requirements.

California red-legged frogs typically breed between November and April in still or slow-moving water at least 2.5 feet in depth with emergent vegetation, such as cattails, tules or overhanging willows (Hayes and Jennings 1988). There are earlier breeding records from the southern portion of their range (Storer 1925). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984). Individuals occurring in coastal areas are active year-round (Jennings *et al.* 1992), whereas those found in interior sites are normally less active during the cold and dry seasons.

During other parts of the year, habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer (Fellers 2005). According to Fellers (2005), this can include vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees. Sometimes the non-breeding habitat used by California red-legged frogs is extremely limited in size. For example, non-breeding California red-legged frogs have been found in a 6-foot wide coyote brush thicket growing along a small intermittent creek surrounded by heavily grazed grassland (Fellers 2005). Sheltering habitat for California red-legged frogs is potentially all aquatic, riparian, and upland areas within the range of the species and includes any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned structures, or hay



stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adult frogs are often associated with permanent bodies of water. Some frogs remain at breeding sites all year while others disperse. Dispersal distances are typically less than 0.5 mile, with other individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred over 1 to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.* California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25-mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area in eastern Contra Costa County stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak of seasonal terrestrial movement occurring in the fall months, with movement commencing with the first 0.2 inch of precipitation. Movements away from the source pools tapered off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the bases of trees or rocks, logs, and a downed barn door; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1-4 days; however, an adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Uplands closer to aquatic sites were used more often and frog refugia were more commonly associated with areas exhibiting higher object cover (*e.g.*, woody debris, rocks, and vegetative cover). Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000-5,000 eggs are attached to vegetation below the surface and hatch after 6-14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand results in 100 percent mortality (Jennings

and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5-7 months following hatching and reach sexual maturity at 2-3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). Sexual maturity normally is reached at 3-4 years of age (Storer 1925; Jennings and Hayes 1985). California red-legged frogs may live 8-10 years (Jennings *et al.* 1992). Populations of California red-legged frogs fluctuate from year to year. When conditions are favorable California red-legged frogs can experience extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, California red-legged frogs may temporarily disappear from an area when conditions are stressful (*e.g.*, drought).

California red-legged frogs have a diverse diet which changes as they mature. The diet of larval California red-legged frogs is not well studied, but is likely similar to that of other ranid frogs, which feed on algae, diatoms, and detritus by grazing on the surfaces of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific tree frogs, three-spined stickleback and to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination; feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

#### *Metapopulation and Patch Dynamics*

The direction and type of habitat used by dispersing animals is especially important in fragmented environments (Forys and Humphrey 1996). Models of habitat patch geometry predict that individual animals will exit patches at more “permeable” areas (Buechner 1987; Stamps *et al.* 1987). A landscape corridor may increase the patch-edge permeability by extending patch habitat (La Polla and Barrett 1993), and allow individuals to move from one patch to another. The geometric and habitat features that constitute a “corridor” must be determined from the perspective of the animal (Forys and Humphrey 1996).

Because their habitats have been fragmented, many endangered and threatened species exist as metapopulations (Verboom and Apeldom 1990; Verboom *et al.* 1991). A metapopulation is a collection of spatially discrete subpopulations that are connected by the dispersal movements of the individuals (Levins 1970; Hanski 1991). For metapopulations of listed species, a prerequisite to recovery is determining if unoccupied habitat patches are vacant due to the attributes of the habitat patch (food, cover, and patch area) or due to patch context (distance of the patch to other

patches and distance of the patch to other features). Subpopulations of patches with higher quality food and cover are more likely to persist because they can support more individuals. Large populations have less of a chance of extinction due to stochastic events (Gilpin and Soule 1986). Similarly, small patches will support fewer individuals, increasing the rate of extinction. Patches that are near occupied patches are more likely to be recolonized when local extinction occurs and may benefit from emigration of individuals via the “rescue” effect (Hanski 1982; Fahrig and Merriam 1985; Gotelli 1991; Holt 1993). For the metapopulation to persist, the rate of patches being colonized must exceed the rate of patches going extinct (Levins 1970). If some subpopulations go extinct regardless of patch context, recovery actions should be placed on patch attributes. Patches could be managed to increase the availability of food and/or cover.

Movements and dispersal corridors likely are critical to California red-legged frog population dynamics, particularly because the animals likely currently persist as metapopulations with disjunct population centers. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects. The survival of wildlife species in fragmented habitats may ultimately depend on their ability to move among patches to access necessary resources, retain genetic diversity, and maintain reproductive capacity within populations (Petit *et al.* 1995; Buza *et al.* 2000; Hilty and Merenlender 2004).

Most metapopulation or metapopulation-like models of patchy populations do not directly include the effects of dispersal mortality on population dynamics (Hanski 1994; With and Crist 1995; Lindenmayer and Possingham 1996). Based on these models, it has become a widely held notion that more vagile species have a higher tolerance to habitat loss and fragmentation than less vagile species. But models that include dispersal mortality predict the opposite: more vagile species should be more vulnerable to habitat loss and fragmentation because they are more susceptible to dispersal mortality (Fahrig 1998; Casagrandi and Gatto 1999). This prediction is supported by Gibbs (1998), who examined the presence-absence of five amphibian species across a gradient of habitat loss. He found that species with low dispersal rates are better able than more vagile species to persist in landscapes with low habitat cover. Gibbs (1998) postulated that the land between habitats serves as a demographic “drain” for many amphibians. Furthermore, Bonnet *et al.* (1999) found that snake species that use frequent long-distance movements have higher mortality rates than do sedentary species.

### *Threats*

Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern California red-legged frogs (*Rana aurora*) in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976, Barry 1992, Hunt 1993, Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern

California red-legged frogs, and suggested that bullfrogs could prey on subadult northern California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with red-legged frog reproduction. Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat. Both California and northern California red-legged frogs have also been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Jennings 1993; Twedt 1993).

The urbanization of land within and adjacent to red-legged frog habitat has also adversely affected California red-legged frogs. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks red-legged frog dispersal, and the introduction of predatory fishes and bullfrogs.

Diseases may also pose a significant threat though the specific effects of diseases on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat to the red-legged frog because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2003). Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2005). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease. Disease will likely become a growing threat because of the relatively small and fragmented remaining California red-legged frog breeding sites, the many stresses on these sites due to habitat losses and alterations, and the many other potential disease-enhancing anthropogenic changes that have occurred both inside and outside the species' range.

Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this BO, such as vehicle-related mortality, habitat degradation, and invasive exotic species. Forman and Deblinger (1998, 2000) described the area affected as the "road effect" zone. Along a 4-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1,970 feet. They describe the boundaries of this zone as asymmetric and in some areas diminished wildlife use attributed to road effects was detected greater than 0.6 mile from Massachusetts Route 2. The "road-zone" effect can also be subtle. Van der Zandt *et al.* (1980) reported that lapwings and black-tailed godwits feeding at 1,575-6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep increase near roads (MacArthur *et al.* 1979). Trombulak and Frossell (2000) described another type of "road-zone" effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads, but elevated levels of metals in both

soil and plants were detected at 660 feet of roads. The “road-zone” apparently varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the effect zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The “road-zone” effect with regard to California red-legged frogs has not been adequately investigated.

The necessity of moving between multiple habitats and breeding ponds means that many amphibian species, such as the California red-legged frog, are especially vulnerable to roads and well-used large paved areas in the landscape. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are more vulnerable to traffic mortality than some other species. Large, high-volume highways pose a nearly impenetrable barrier to amphibians and result in mortality to individual animals as well as significantly fragmenting habitat. Hels and Buchwald (2001) found that mortality rates for anurans on high traffic roads are higher than on low traffic roads. Vos and Chardon (1998) found a significant negative effect of road density on the occupation probability of ponds by the moor frog (*Rana arvalis*) in the Netherlands. In addition, incidents of very large numbers of road-killed frogs are well documented (e.g., Ashley and Robinson 1996), and studies have shown strong population level effects of traffic density (Carr and Fahrig 2001) and high traffic roads on these amphibians (Van Gelder 1973; Vos and Chardon 1998). Most studies regularly count road kills from slow moving vehicles (Hansen 1982; Rosen and Lowe 1994; Drews 1995; Mallick *et al.* 1998) or by foot (Munguira and Thomas 1992). These studies assume that every victim is observed, which may be true for large conspicuous mammals, but it certainly is not true for small animals, such as the California red-legged frog. Amphibians appear especially vulnerable to traffic mortality because they readily attempt to cross roads, are slow-moving and small, and thus cannot easily be avoided by drivers (Carr and Fahrig 2001).

### **Environmental Baseline**

The proposed SR 116 Post Mile 39.8 Slope Stabilization Project is located in a rural area approximately 2.8 miles southeast of the urbanized boundary of the City of Petaluma. The general vicinity is primarily characterized by rolling grassland with widely scattered residence, ranchettes, grazing, and agricultural operations. Due to low development, there is high degree of habitat connectivity within the general vicinity.

The California Natural Diversity DataBase (CNDDB) includes four records of the California red-legged frog within 3 miles of the construction footprint (CDFW 2013a; 2013b). The closest CNDDB record is approximately 1.3 miles east of the construction footprint (CNDDB occurrence 659). This record includes multiple frogs and confirmed breeding in a stock and an in-stream pond occupied by bullfrogs. Occurrence 959 is approximately 2 miles to the west and includes adult red-legged frogs observed in a small stream flowing into the Petaluma Marsh. The other two CNDDB records are located approximately 600 feet from one another, approximately 2.5 miles northwest of the construction footprint, and adjacent to SR 116 (CNDDB occurrences 524 and 753). Occurrence 524 includes adult frog and frog eggs found in a pond within the Sonoma Transfer Station Landfill property. Occurrence 753 is a red-



legged frog discovered by Caltrans in a Champlin Creek plunge pool, immediately adjacent to SR 116.

Red-legged frogs will take refuge in an assortment of damp to inundated locations and can breed in a variety of freshwater situations, including freshwater marshes, backwater pools, ditches, agricultural basins, and stock ponds. Other than being adjacent to the ephemeral Stage Gulch Creek, the project site is within 2 miles of other creeks, ponds, and wetlands. Tolay Creek is approximately 0.75 mile to the northeast where it comes in close proximity to SR 116. Champlin Creek is approximately 1.7 miles to the northeast and parallels SR 116. California red-legged frogs have been found in these two creek systems. There are at least four other ephemeral creeks within 2 miles of the construction footprint. Caltrans identified a small (0.003 acre) wetland within the construction footprint. This feature is found at the base of the unstable slope, adjacent to the SR 116 road shoulder. Based on a review of aerial images, there are numerous wetland features within 0.5 mile of the construction footprint, primarily associated with local drainages. There are at least 10 ponds within a mile radius of the project footprint. They appear to be basins or stock ponds of various sizes associated with livestock or agricultural operations. Confirmed California red-legged frog breeding has been documented in a stock pond approximately 1.3 miles away (previously referenced Occurrence 659).

The local aquatic habitat is surrounded by rolling hills covered with grassland vegetation. This contiguous upland habitat is associated with the dispersal, refugia, and foraging life history of the California red-legged frog. Adult California red-legged frogs are highly mobile and have been documented to move more than 2 miles over upland habitat. There are no apparent movement barriers between the various aquatic features, upland habitat, and the construction footprint. Due to roadkill risk, SR 116 and rural roads are the only perceived impediments to the frog's movement in the general vicinity.

The recovery plan for California red-legged frogs identifies eight Recovery Units (Service 2002). The establishment of these Recovery Units is based on the Recovery Team's determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog will be considered within the smaller scale of Recovery Units as opposed to the overall range. These Recovery Units are delineated by major watershed boundaries as defined by U. S. Geological Survey hydrologic units and the limits of the range of the California red-legged frog. The goal of the recovery plan is to protect the long-term viability of all extant populations within each Recovery Unit. The proposed project is within Petaluma Creek-Sonoma Creek Core Recovery Area of Recovery Unit 3 (North Coast and North San Francisco Bay Unit) (Service 2002). The conservation needs for this core unit are to protect existing populations, reduce impacts of urban development; and protect, restore, and/or create breeding and dispersal habitat.

Neither the project footprint nor the action area include designated critical habitat for the California red-legged frog.

The Service believes that the California red-legged frog is reasonably certain to occur within the action area due to: (1) the project being located within the species' range and current distribution; (2) the lack of significant disturbance or history of significant threats to the species

in the general vicinity; (3) upland habitat for dispersal, forage, and cover are located within the construction footprint; (4) the action area has connectivity with multiple potential breeding ponds less than the known dispersal distance for the species; (5) the action area is located within potential dispersal corridors between surrounding upland and aquatic habitat; (6) all the elements needed to support the species' life history are located within 0.5-mile of the construction footprint; (7) the ability of the California red-legged frog to move a considerable distance; and (8) the biology and ecology of the animal.

### Effects of the Action

Caltrans proposes to reduce construction related effects by implementing the *Conservation Measures* included in the *Description of the Action* section of this BO. Effective implementation of the *Conservation Measures* will likely reduce effects to the California red-legged frog during construction but incidental take is still likely to occur. Therefore, the proposed SR 116 Post Mile 39.8 Slope Stabilization Project has the potential to result in a variety of adverse effects that would result in take of the California red-legged frog.

Construction activities could result in the killing, harming and/or harassment of juvenile and adult frogs inhabiting the action area. The project, as proposed in Caltrans' September 2013 BA, is defined by a 1.147-acre construction footprint, parallel to and approximately 50 feet from Stage Gulch Creek. The project will include 0.327 acre of permanent and 0.587 acre of temporary loss of California red-legged frog habitat.

Adverse effects to the California red-legged frog will most likely be limited to the construction phase of the project. Permanent and temporal loss of habitat will result from the construction activities associated with the placement of RSP and the upland habitat modification from grassland to a 0.327 acre field of large-sized rock. Construction noise, vibration, and increased human activity during construction may interfere with normal frog behaviors such as feeding, sheltering; movement between refugia, foraging grounds, and within Stage Gulch Creek; and other frog essential behaviors. This can result in avoidance of areas that have suitable habitat but intolerable levels of disturbance.

Unless identified by the biological monitor or site personnel and rescued by the biological monitor, individual California red-legged frogs exposed during earthwork or moving within active work areas, likely will be crushed and killed or injured by construction-related activities. Even with biological monitoring, overall awareness, and proper escape ramps, California red-legged frogs could fall into the trenches, pits, or other excavations, and then risk being directly killed or be unable to escape and be killed due to desiccation, entombment, or starvation. Proper trash disposal is often difficult to enforce and is a common non-compliance issue. Improperly disposed edible trash could attract predators, such as raccoons, crows, and ravens, to the site, which could subsequently prey on the listed amphibian. Caltrans' commitment to use erosion control devices other than mono-filament should be effective in avoiding the associated risk of entrapment that can result in death by predation, starvation, or desiccation (Stuart *et al.* 2001). Constructing the project between June 1 and October 15 primarily avoids the wettest time of year and the onset of the breeding season when frogs are more likely to be involved in dispersal.

Caltrans will further reduce adverse effects by: locating the construction staging, storage, and parking areas on previously disturbed areas where small mammal burrows and other California red-legged frog cover sites are unlikely to occur; clearly marking construction work boundaries with high-visibility fencing; conducting preconstruction surveys and biological monitoring; and stabilizing and revegetating temporarily disturbed areas. Adverse effects from construction activities will be partially reduced by: installing wildlife exclusion fencing to deter frogs from entering the construction area; educating workers; and requiring a Service-approved biologist to be present to monitor initial ground disturbing activities.

If unrestricted, the proposed construction activities could result in the introduction of chemical contaminants to frog habitat. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. However, Caltrans proposes to minimize these risks by implementing a SWPPP and erosion control BMPs to capture sediment and prevent runoff or other harmful chemicals from entering Stage Gulch Creek.

Preconstruction surveys and the relocation of individual California red-legged frogs may avoid injury or mortality; however, capturing and handling frogs may result in stress and/or inadvertent injury during handling, containment, and transport. Caltrans proposes to minimize these effects by using Service-approved biologists, limiting the duration of handling, and relocating amphibians to suitable nearby habitat within or immediately adjacent to Stage Gulch Creek in accordance with Service guidance.

If unrestricted, biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus, may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (*e.g.*, water pH) that reduce normal immune response capabilities (Bosch *et al.* 2001, Weldon *et al.* 2004).

The RSP will locally stabilize the slope, alleviating the existing and future threat of sediment discharge into Stage Gulch Creek; therefore reducing the future likelihood of associated harm to the California red-legged frog and degradation of its habitat. Caltrans will restore the 0.587-acre area needed for temporary access, staging, and work back to grassland habitat. The 0.327-acre RSP field will be covered with reserved topsoil and seeded. Although this 0.327-acre area may not be returned to baseline California red-legged frog dispersal, cover, and forage ecological values, the area may regain some ecological function for the species and is unlikely to create a barrier to frog dispersal. The completed project will not result in the increase of travel speed or capacity on SR 116 and therefore is unlikely to increase the local risk of California red-legged frog mortality due to vehicle collision.



Neither the project footprint nor the action area include designated critical habitat for the California red-legged frog and the project is unlikely to have direct or indirect effects on critical habitat for the species.

### **Cumulative Effects**

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed SR 116 Post Mile 39.8 Slope Stabilization Project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of specific projects that might affect the California red-legged frog in the action area that are currently under review by State, county, or local authorities.

### **Conclusion**

After reviewing the current status of California red-legged frog, the environmental baseline for the action area, and the effects of the action, and the cumulative effects on the species, it is the Service's biological opinion that the proposed SR 116 Post Mile 39.8 Slope Stabilization Project, as described herein, is not likely to jeopardize the continued existence of this species. We base this conclusion on the following: (1) Caltrans will implement a standard list of conservation measures to reduce their adverse effects to the California red-legged frog; (2) ground disturbing activities will be limited to the summer season when frogs are less likely to be dispersing through upland areas; (3) the project footprint is relatively small; and (4) construction will be completed in a short period of time.

The project does not include direct or indirect effects to designated critical habitat for the California red-legged frog or other listed species and therefore will not result in adverse modification to critical habitat.

## **INCIDENTAL TAKE STATEMENT**

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this *Incidental Take Statement*.

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this *Incidental Take Statement*. If Caltrans (1) fails to assume and implement the *Terms and Conditions* or (2) fails to adhere to the *Terms and Conditions* of the *Incidental Take Statement* through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the *Incidental Take Statement* [50 CFR §402.14(i)(3)].

### **Amount or Extent of Take**

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their wariness, cryptic nature, and the difficulty of finding and fully investigating their cover sites. Finding an injured or dead California red-legged frog is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger. Losses of the California red-legged frog may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent and temporary loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the action as (1) the injury and mortality of no more than one adult, juvenile, or larval California red-legged frog and (2) the capture, harm and harassment of all California red-legged frogs within the 1.147-acre project footprint. Upon implementation of the following *Reasonable and Prudent Measure*, California red-legged frogs within the action area in proportion to the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

### **Effect of the Take**

The Service has determined that this level of anticipated take for the California red-legged frog is not likely to jeopardize the continued existence of this species.

### **Reasonable and Prudent Measure**

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effect of the action on the California red-legged frog. Caltrans will be responsible for the implementation and compliance with this measure:

1. Minimize the adverse effects to the California red-legged frog and its habitat in the action area by implementing their proposed project, including the conservation measures as described, with the following terms and conditions.

## Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. The following *Terms and Conditions* implement *Reasonable and Prudent Measure* one (1):
  - a. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this BO, including vehicle parking, staging, laydown areas, and access.
  - b. Each California red-legged frog encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured frog if it is not in danger or (2) move the frog to a nearby location if it is in danger.

These two options are further as follows.

- 1) When a California red-legged frog is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah ([ryan\\_olah@fws.gov](mailto:ryan_olah@fws.gov)) or John Cleckler ([john\\_cleckler@fws.gov](mailto:john_cleckler@fws.gov)). They can also be reached at (916) 414-6600. If you get voicemail messages for these contacts then contact John Cleckler on his cell phone at (916) 712-6784. Contact the Service prior to the start of construction to confirm the status of this contact information.

The first priority is to avoid contact with the frog and allow it to move out of the action area and hazardous situation on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is inconvenient for the construction schedule. This guidance only applies to situations where a California red-legged frog is encountered on the move during conditions that make their upland travel feasible. This does not apply to California red-legged frog that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the California red-legged frog should they move outside the construction footprint (see option 2 below).

Avoidance is the preferred option if the California red-legged frog is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should be well marked for avoidance by construction and a

Service-approved biological monitor should be assigned to the area when work is taking place nearby.

- 2) The animal should be captured and moved when it is the only option to prevent its death or injury.

If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the frog should not be moved outside of the area it would have traveled on its own. Under no circumstances should a frog be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission.

The release must be coordinated with the Service and will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow or other suitable refugia and in certain circumstances pools without non-native predators may be suitable.

Only Service-approved biologists for the project can capture California red-legged frogs. Nets or bare hands may be used to capture California red-legged frogs. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within 2 hours before and during periods when they are capturing and relocating California red-legged frogs. To avoid transferring disease or pathogens between sites during the course of surveys or handling of the frogs, Service-approved biologists must use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the *Declining Amphibian Population Task Force's Code* (<http://www.open.ac.uk/daptf/>).

- i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/or an amphibian. Cleaned items should be rinsed with fresh water before leaving each site.
- ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.

- iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.
- iv. Service-approved biologists must limit the duration of handling and captivity. While in captivity, individual California red-legged frogs shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting should not contain any standing water.

The Service believes that no more than one California red-legged frog will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. Caltrans must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

#### *Reporting Requirements*

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5-minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the following *Disposition of Individuals Taken* section.
2. Sightings of any listed or sensitive animal species should be reported to the CNDDDB of the CDFW (<http://www.dfg.ca.gov/biogeodata/cnddb/>).
3. Caltrans shall submit a post-construction compliance report prepared by the on-site biologist to the Service within forty (40) working days following project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days. This report will detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on listed species, if any; (v) occurrences of incidental take of any listed species; and (vi) other pertinent information. The report(s) will be addressed to

the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office.

*Disposition of Individuals Taken*

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellan, California 95562, at (916) 569-8444.

### CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of an action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.
2. Caltrans should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002).
3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog, other listed species, and sensitive species.
4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog, and other appropriate species. Such banking systems also could possibly be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.
5. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by California red-legged frog, other listed animals, and wildlife. Photographs, plans, and other information into the BAs if "wildlife friendly" crossings are incorporated into projects. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology.



Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

### REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the proposed SR 116 Post Mile 39.8 Slope Stabilization Project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this BO, including work outside of the project footprint analyzed in this BO and including vehicle parking, staging, lay down areas, and access roads; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this BO including use of rodenticides or herbicides; relocation of utilities; and use of vehicle parking, staging, lay down areas, and access roads; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have questions concerning this BO, please contact John Cleckler, Caltrans Liaison ([john\\_cleckler@fws.gov](mailto:john_cleckler@fws.gov)) or Ryan Olah, Coast-Bay/Forest Foothills Division Chief ([ryan\\_olah@fws.gov](mailto:ryan_olah@fws.gov)), at the letterhead address, (916) 414-6600, or by e-mail.

Sincerely,



Jennifer M. Norris  
Field Supervisor

cc:

Melissa Escaron, California Department of Fish and Wildlife, Napa, California  
Kristin Baker, California Department of Transportation, Fresno, California

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**Personal Communication**

Gaber, Christine. 2008. Senior Wildlife Biologist, Pacific Gas and Electric, Walnut Creek, California. Personal communication with Chris Nagano, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, on October 22, 2008.

Kobernus, Patrick. 2008. Wildlife Biologist, Coast Ridge Ecology, San Francisco, California. Personal communication with Michelle Havens, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, on October 16, 2008.

## **Appendix D** Comments and Responses

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No comments were received during the public circulation and comment period from December 2, 2013 to January 3, 2014. If comments had been received this Appendix is where they would be presented along with a response to each.

This section contains the Acknowledgement of Receipt from the Governor's Office of Planning and Research- State Clearinghouse and Planning Unit. This letter serves to indicate that Caltrans as lead agency has complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

## Acknowledgement from State Clearinghouse



Edmund G. Brown Jr.  
Governor

STATE OF CALIFORNIA  
Governor's Office of Planning and Research  
State Clearinghouse and Planning Unit



Ken Alex  
Director

January 2, 2014

Kristen Merriman  
California Department of Transportation, District 6  
855 M. Street, Suite 200  
Fresno, CA 93721

Subject: Highway 116 Slope Stabilization  
SCH#: 2013122004

Dear Kristen Merriman:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on December 31, 2013, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan  
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044  
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov



### ***Response to Acknowledgement from State Clearinghouse***

Thank you for this letter serving to indicate that Caltrans as lead agency has complied with the State Clearinghouse review requirements pursuant to the California Environmental Quality Act.

Caltrans filed the Notice of Completion with the State Clearinghouse, yet staff there posted this draft environmental document information in the CEQAnet Database indicating the Lead Agency as Caltrans District 6. For clarification the project is located in District 4, (SCH # 2013122004). When searching do not use the District in the query parameters.

## **Appendix E** List of Technical Studies/Materials Available Separately

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Project Area Map and Cross Sections

Project Area Photos

Air Quality Analysis and Noise Analysis (October 11, 2013)

Water Quality Memo (November 18, 2013)

Natural Environment Study (September 2013)

Hazardous Waste Review (October 10, 2013)

Landscape Resources and Visual Resources Review (March 6, 2013)

Paleontological Evaluation Report (August 27, 2013)

Floodplain Map

Biological Assessment (September 2013)

The following technical study has been removed due to confidentiality:

Cultural Resource Review (August 13, 2013)

The legal authority to restrict cultural resource information can be found in California Government Code Sections 6254.10 and 6254(r); California Code of Regulations Section 15120(d); and Section 304 of the National Historic Preservation Act of 1966.